centers of India. This will not only help in better management of the patients but also the approach is cost effective in long run as against the myth that such tests are unaffordable for developing world.

**Respiratory virus infections after bone marrow transplant (BMT) in São Paulo, Brazil**

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Respiratory viruses (RV) are a frequent cause of severe respiratory disease in BMT recipients. Few clinical and epidemiological data of RV infections are available in immunocompromised patients in South America. We conducted a prospective trial from April 2001 to January 2002 to evaluate the frequency of respiratory viruses in BMT recipients. Nasal washes (NW) were collected in all patients with symptoms of upper respiratory tract infection (URI). Direct immunofluorescence assay (DAKO) was performed for antigen detection of RSV, influenza (Flu) A and B, adenovirus and parainfluenza (Paraflu) virus. Patients with established RSV pneumonia and patients with RSV-URI infection before engraftment or those with acute GvHD grade ≥II received aerosolized ribavirin. Oseltamivir was given to all patients with influenza. One hundred ninety seven patients had 314 episodes of URI during the study period (mean 1,6 episodes per patient). The mean number of NW taken was 3,14 (1 to 16) per patient. Sixty-eight patients (34.5%) tested positive: RSV was detected in 15 patients (22%); Flu B in 18 (26.4%), Flu A in 14 (20.5%) and Paraflu in 4 (5.8%). Most frequent virus associations were RSV+Flu A, Flu A+Flu B and RSV+Flu B (5.8%; 5.8% and 4.4% respectively). The remaining 6 patients (8.8%) had other RV associations. RSV pneumonia developed in 12 of the 25 patients (48%) with RSV-URI. RSV related death was observed in 1 patient with pneumonia (8.3%). Flu B pneumonia was diagnosed in one patient (3.5%). Similarly to developed countries, RSV infections occurred during fall and early winter. Influenza viruses peaked in winter-spring months. Pre-emptive therapy with aerosolized ribavirin and oseltamivir probably contributed to the decreased rates of RSV related deaths and influenza pneumonia observed in the present study.

**Association of simian virus 40 (SV40) with pediatric renal disease**

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The polyomaviruses (BKV, JCV, and SV40) are ubiquitous agents that cause latent infection of the kidney with intermittent excretion in immune competent hosts and manifest disease during immune suppression. BKV causes nephropathy in adult renal transplant patients, and JCV is commonly found in the urine of healthy adults. Little is known about polyomavirus infection in pediatric patients with renal disease, although SV40 has been associated with pediatric renal transplantation by serologic testing and by direct detection of SV40 DNA in biopsy material. To test the hypothesis that polyomaviruses may be associated with pediatric renal disease, we enrolled children with NS (n=50) or immune compromise (HIV infection, acute lymphocytic leukemia or heart transplantation, n=36) in a prospective study of polyomavirus infection as determined by polyomavirus PCR using buffy coat- and urine pellet-derived DNA samples, followed by virus-specific oligonucleotide hybridization. For comparison, we tested archival DNA samples from buffy coat specimens collected by the Diagnostic Virology Laboratory at Texas Children's Hospital.

There was no difference in the urinary excretion of polyomaviruses in total (JC virus, BK virus, or SV40), being present in 18 of 59 samples (30.5%) from children with NS and in 4 of 22 samples (18.2%) from children of the immune-compromised groups ($p=0.43$). Of 35 children with renal disease, BKV, JCV, and SV40 were detected in the urine of 6, 10 and 7 children, respectively. Among 15 children with immune compromise, BKV, JCV, and SV40 were detected in the urine of 2, 2, and 0 patients, respectively. Only SV40 excretion was found to be associated with renal disease ($p=0.03$). From buffy coat samples, 8 of 26 children with renal disease were positive for SV40, whereas none contained detectable JCV or BKV DNA. Several children were identified with concurrent SV40 viremia and viruria. In contrast, none of 136 archival DNA samples from 86 children were positive for SV40 sequences ($p<0.001$).

Taken together, these data suggest an association of SV40 polyomavirus infection with pediatric renal disease. Further studies are required to delineate the pathophysiologic and prognostic significance of SV40 infection in children with renal disease and after renal transplantation.

**Randomized controlled trial of oral ganciclovir versus intravenous ganciclovir for long-term prophylaxis of cytomegalovirus (CMV) disease in CMV-seronegative liver transplant recipients willi CMV-seropositive donors**

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For high-risk CMV-seronegative liver transplant recipients with CMV-seropositive donors, 100 days of post-transplant intravenous (IV) ganciclovir has been the most effective regimen for prophylaxis of CMV disease but is limited by the need for prolonged IV

access. Thus, in this controlled trial, following induction with 14 days of IV ganciclovir (6mg/kg IV qd), CMV-seronegative liver transplant recipients with CMV-seropositive donors were randomized to receive either oral ganciclovir (1000 I mg 18hrs, Mon–Sun) or IV ganciclovir (6 mg/kg qd, Mon–Fri) until day 100 after transplant. Patients were followed until time of death or 12 months after transplant. CMV disease occurred in 3/32 oral ganciclovir patients (9.3%) and in 4/32 IV ganciclovir patients (12.5%). Types of CMV disease: oral ganciclovir (syndrome 2, hepatitis 1); IV ganciclovir (syndrome 3, hepatitis + colitis 1). There were no deaths from CMV in either study group. All cases of CMV disease occurred >90 days after transplant (median time of onset day+137 for oral ganciclovir and day+135 for IV ganciclovir). Both oral and IV ganciclovir were well-tolerated. Reversible leukopenia (WBC <3000/mm$^3$) occurred in 9/32 oral ganciclovir patients (28.1%) and in 12/32 IV ganciclovir patients (37.5%) but did not require withdrawal of any patient from the study. Emergence of ganciclovir-resistant strains of CMV was not found during the study. These results suggest that, following induction with 2 weeks of IV ganciclovir, oral ganciclovir can be as effective as IV ganciclovir for long-term CMV prophylaxis in high-risk CMV-seronegative liver transplant patients with CMV-seropositive donors and eliminate the need for prolonged IV access.

### Predictors of low efficacy of hepatitis B vaccination in hemodialysis (HD) patients

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Two hundred and sixteen HD patients (M:102, F:114, aged 45.17±12.84) received recombinant hepatitis B vaccine (Combiotech Ltd, Russia) or Engerix B. The protocol of vaccination scheduled 4 doses of 40 μg at 0-1-2-6 months. Before the end of vaccination 13 pts (6%) had acute hepatitis B. HBsAb levels in this group was <100 IU/L after the 3 mos. 27 pts (13%) at the end of vaccination had HBcoreAB. The efficacy of vaccination was evaluated by the determination HBsAb levels after 3 and 7 mos from the beginning of immunization in 176 pts. The frequency of seroconversion (HBsAb level from 10 to 99 IU/L) after 3mos was 23% and it was 13% after 7 mos. The rate of seroprotection (HBsAb level ≥100 IU/L) after 3 mos reached 50% and increased up to 70% after 7 mos. Relation between some factors involved in immune response and vaccination efficiency in 46 pts was studied. In patients with HBsAb level <100 IU/l count CD3 lymphocytes were 0.84±0.1 $10^9$/l, CD20–0.36±0.04 $10^9$/l, and concentration of IL-1–2.78±0.63 pmol/ml, IL-2 –13.36±1.97 pmol/ml, IgM – 0.84±0.14 g/l. In patients with HBsAb levels ≥100 IU/l these values were significantly different ($p<0.05$) and were equal to 0.95±0.16 $10^9$/l, 0.41±0.05 $10^9$/l, 3.22±0.77 pmol/ml, 15.96±3.2 pmol/ml, 1.1±0.24 g/l, respectively. Logistic regression analysis and criteria tables method permitted to determine the predictors of low efficacy of vaccination in HD patients: amount CD20 lymphocytes ≤3.5($10^9$/π, concentration IgM ±0.95 π/π, IL–2 ≤12 pmol/ml, transferrin in blood >2.8 g/L. The presence of two and more from these parameters allows the prognosis of negative or low response to vaccination. Sensitivity and specificity of such prognosis equal 86% and 84%, respectively.

## BACTERIAL INFECTIONS

### Activity of 26 antimicrobial agents tested against *Listeria monocytogenes:* eighty-four isolates from patients with systemic listerosis at a comprehensive cancer center during the later half of the last century

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**Introduction:** Systemic infections due to *Listeria monocytogenes* are infrequent but serious complications in patients with an underlying malignancy. Institution of appropriate therapy is critical in improving outcome especially in patients with profound defects in cellular immunity.
**Methods:** In vitro antimicrobial susceptibility profiles of 84 clinical isolates of *L. monocytogenes* from patients with listeric infections during 1955 to 1997 at Memorial Sloan-Kettering Cancer Center in New York were reviewed retrospectively.
**Results:** The 84 *L. monocytogenes* isolates showed greater than ninety percent *in vitro* susceptibility to penicillin (97.6%), ampicillin (90.7%), erythromycin (98.8%), tetracycline (96.9%), and gentamicin (98.0%). No *in vitro* resistance was observed for trimethoprim-sulfamethoxazole (TMP-SMX), rifampin, amikacin, vancomycin, imipenem/cilastatin, and ciprofloxacin. High-level resistance to clindamycin (96.2%), and amoxicillin/clavulanate (100%) was unexpected. The $MIC_{50}$ and $MIC_{90}$ among 26 *L. monocytogenes* during 1991 to 1997 for penicillin and ampicillin were 0.5 and 1.0 μg/ml respectively. During this period $MIC_{90}$ for gentamicin, imipenem/cilastatin, and ciprofloxacin was ≤1.0 μg/ml.
**Conclusions:** Since 1955, we observed no interval increase in resistance for penicillin, ampicillin, gentamicin and TMP-SMX among *L. monocytogenes* in our high-risk listeric patients. Amoxicillin/clavulanate does not appear to be an adequate choice for oral therapy in this setting. The newer antimicrobial compounds such as